

ABSTRACT OF THE DISCLOSURE

Processes and apparatus for producing esters are described. The processes include: (a) providing a liquid reaction mixture comprising (i) an unsaturated carboxylic acid having a boiling point greater than water, (ii) a polyhydric alcohol, and (iii) a first polymerization inhibitor, in a reaction zone having an inner surface; (b) reacting the acid and the polyhydric alcohol to form an ester, such that a gas/vapor phase is formed comprising water of reaction; (c) removing at least a portion of the gas/vapor phase from the reaction zone to a dephlegmation zone having an inner surface; (d) partially condensing the portion of the gas/vapor phase in the dephlegmation zone such that a condensate is formed; and (e) returning the condensate to the reaction zone; wherein a second polymerization inhibitor is introduced into the dephlegmation zone such that the portion of the gas/vapor phase and/or the condensate are contacted with the second polymerization inhibitor. Apparatus for carrying out the processes are also described.